

3. Remarks/Discussion of Issues

Claim Summary

By the present Amendment, claims 16 and 17 have been canceled, without prejudice and without disclaimer of the subject matter. Claims 13, 31 and 32 have been revised.

Claims 13-15 and 18-32 are pending in the application. Applicants respectfully submit that all pending claims are in condition for allowance.

Amendments to the Specification

The Office Action of February 25, 2010, objects to the Abstract. *See* Office Action, p. 2. Accordingly, by the present Amendment, Applicants have replaced the Abstract with a new Abstract. Applicants respectfully submit that no improper new matter has been introduced by the Amendment.

35 U.S.C. § 112 Rejection - Claims 17, 31 and 32

The Office Action of February 25, 2010, rejects claims 17, 31 and 32 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. *See* Office Action, p. 2.

Without acquiescing to the grounds of rejection, Applicants have revised claims 31 and 32 to recite --including-- in place of "comprising" outside of the preamble, although Applicants submit that including and comprising in this context have the same meaning. Claim 17 has been canceled, so the rejection is moot.

Accordingly, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 112, second paragraph.

35 U.S.C. § 102 Rejections

Applicants rely at least on the following standards with regard to proper rejections under 35 U.S.C. § 102. Notably, anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *See, e.g., In re Paulsen*, 30 F.3d 1475, 31 USPQ2d 1671 (Fed. Cir. 1994); *In re Spada*, 911 F.2d 705, 15 USPQ2d 1655 (Fed.

Cir. 1990); *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983). Alternatively, anticipation requires that each and every element of the claimed invention be embodied in a single prior art device or practice. *See, e.g., Minnesota Min. & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992). For anticipation, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *See, e.g., Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ2d 1001 (Fed. Cir. 1991).

Applicants' silence on certain aspects of the rejections is by no means a concession as to their propriety. Rather, because the applied art fails to disclose at least one feature of the claims, for at least the reasons discussed below, Applicants respectfully submit that the rejections are improper and should be withdrawn.

Claims 13, 16-28, 31, 32

The Office Action of February 25, 2010, rejects claims 13, 16-28, 31 and 32 under 35 U.S.C. § 102(b) as being anticipated by ELSCHNER et al. (U.S. Patent No. 5,917,279). *See* Office Action, p. 3. Applicants respectfully traverse the rejection for at least the reasons set forth herein.

As an initial matter, Applicants note that the Office Action does not address the claims by claim number or specific claim elements. *See* Office Action, p. 3. Rather, the Office Action merely provides a narrative of what is allegedly disclosed by ELSCHNER et al., leaving Applicants in the position of having to surmise that which may be considered by the Examiner to disclose the various claim elements. Accordingly, Applicants respectfully submit that the rejection fails to comply with MPEP § 706 ("The goal of examination is to clearly articulate any rejection early in the prosecution process so that the applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity.") and 37 CFR § 1.104(c)(2) ("When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable."), and that the Examiner therefore has not established a

prima facie case of anticipation with respect to the claims. Notwithstanding, Applicants have attempted to address the rejection, below.

Claim 13

Independent claim 13 is directed to an electroluminescent device and recites:

an intermediate layer comprising a light emitting layer and one of a transportation layer or an injection layer positioned between an anode electrode and a cathode electrode, the one of the transportation layer or the injection layer comprising a basic material and colloidal silicon dioxide particles, the colloidal particles causing the one of the transportation layer or the injection layer to become substantially transparent to light emitted from the light emitting layer,

wherein the electroluminescent device emits light when a voltage is applied across the anode and cathode electrodes.

Claim 13 has been revised to recite that the one of the transportation layer or the injection layer includes a basic material and colloidal silicon dioxide particles, which cause the transportation layer or injection layer to become substantially transparent to light emitted from the light emitting layer. *See, e.g.,* Specification, p. 2, lines 21-24; p. 4, line 31 – p. 5, line 4. ELSCHNER et al. does not disclose at least these features. For example, the nanoparticles disclosed by ELSCHNER et al. are metal oxides, such as TiO₂, SnO₂, ZnO, WO₃, Al₂O₃, Fe₂O₃, etc., with TiO₂ being preferable. *See, e.g.,* col. 2, lines 22-28. The nanoparticle material preferably has a band gap amounting to at least 1eV, in order to increase efficiency and long-term stability. *See* col.2, lines 17-20; col. 3, lines 19-22. In comparison, it has been specifically shown that the colloidal silicon dioxide particles increase the percentage of light emitting from the intermediate layer structure (Specification, p. 2, lines 21-24), and that the intermediate layer becomes almost fully transparent (Specification, p. 4, line 31 – p. 5, line 2).

Accordingly, Applicants respectfully submit that ELSCHNER et al. does not disclose each and every element of claim 13. Therefore, the rejection of claim 13 under 35 U.S.C. § 102(b) should be withdrawn.

Claim 31

Independent claim 31 is directed to an electroluminescent device and recites:

a first electrode;
a transportation layer on the first electrode, the transportation layer including colloidal silicon dioxide particles that increase transparency of the transportation layer;
a light emitting layer on the transportation layer; and
a second electrode on the light emitting layer,
wherein the device emits light when a voltage is applied across the first and second electrodes, and wherein the transportation layer includes one of a hole transportation layer for transporting positive charges or an electron transportation layer for transporting negative charges.

Applicants respectfully submit that ELSCHNER et al. does not disclose each and every element of claim 31 for at least substantially the same reasons discussed above with respect to claim 13. Therefore, the rejection of claim 31 under 35 U.S.C. § 102(b) should be withdrawn.

Claim 32

Independent claim 32 is directed to an electroluminescent device and recites:

a first electrode;
an injection layer on the first electrode, the injection layer including colloidal silicon dioxide particles that increase transparency of the injection layer;

*a light emitting layer on the injection layer; and
a second electrode on the light emitting layer,
wherein the device emits light when a voltage is applied across the
first and second electrodes, and wherein the injection layer includes one of a
hole injection layer for injecting positive charges or an electron injection
layer for injecting negative charges.*

Applicants respectfully submit that ELSCHNER et al. does not disclose each and every element of claim 32 for at least substantially the same reasons discussed above with respect to claim 13. Therefore, the rejection of claim 32 under 35 U.S.C. § 102(b) should be withdrawn.

Claims 16-28

Claims 16-28 depend, directly or indirectly, from claim 13, and are therefore allowable for at least the reasons discussed above with respect to claim 13, as well as in view of their additional recitations.

For example, claim 24 recites that an average diameter of the colloidal particles is about the same as a thickness of the transportation layer or injection layer; claim 25 recites that an average diameter of the colloidal particles is about half a thickness of the transportation layer or injection layer; and claim 26 recites that an average diameter of the colloidal particles is about twice a thickness of the transportation layer or injection layer. ELSCHNER et al. does not disclose the diameters of nano-particles relative to the thickness of the layer containing the nano-particles. Rather, ELSCHNER et al. merely provides independent ranges for each. The Office Action does not specifically address these features, but merely states, “[f]or size of the particles please see line line [sic] 14 of column 2. See Office Action, p. 3.

Claims 31, 32

The Office Action of February 25, 2010, also rejects claims 31 and 32 under 35 U.S.C. § 102(b) as being anticipated by MEISSNER et al. (U.S. Patent No. 6,559,375). See Office

Action, p. 3. Applicants respectfully traverse the rejection for at least the reasons set forth herein.

Claim 31 has been revised to recite that the transportation layer includes colloidal silicon dioxide particles that increase transparency of the transportation layer, and claim 32 has been revised to recite that the injection layer includes colloidal silicon dioxide particles that increase transparency of the injection layer. *See, e.g.*, Specification, p. 2, lines 21-24; p. 4, line 31 – p. 5, line 4. Similar to the above discussion with respect to ELSCHNER et al., MEISSNER et al. does not disclose at least these features. For example, MEISSNER et al. discusses semiconductor material colloidally dissolved in various layers (e.g., first and second layers 30 and 60), but does not mention colloidal silicon dioxide particles. *See, e.g.*, col. 6, lines 44-60. In addition, there is no disclosure of the layers having the colloidally dissolved semiconductor material being transparent.

Accordingly, Applicants respectfully submit that MEISSNER et al. does not disclose each and every element of claims 31 and 32. Therefore, the rejection of claims 31 and 32 under 35 U.S.C. § 102(b) should be withdrawn.

35 U.S.C. § 103 Rejections

The Office Action of February 25, 2010, rejects claims 14, 15, 28, 29 and 30 under 35 U.S.C. § 103(a) as being unpatentable over ELSCHNER et al. Applicants respectfully traverse the rejection, and submit that claims 14, 15, 28, 29 and 30 are allowable at least because they depend, directly or indirectly, from independent claim 13, which Applicants submit has been shown to be allowable over ELSCHNER et al., as well as in view of their additional recitations.

Conclusion

In view of the foregoing explanations, Applicants respectfully request that the Examiner reconsider and reexamine the present application, allow claims 13-15 and 18-32, and pass the application to issue.

Appl. No. 10/599,387
Amendment and/or Response
In Reply to Final Office Action February 25, 2010

Response under 37 C.F.R. § 1.116

In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Van C. Ernest (Reg. No. 44,099) at (571) 283.0720 to discuss these matters.

Respectfully submitted on behalf of:
Philips Electronics North America Corp.

A handwritten signature in black ink, appearing to read 'V-C Ernest', is written over a horizontal line.

by: Van C. Ernest (Reg. No. 44,099)

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